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FOOD IN ITS RELATIONS TO PERSONAL AND PUBLIC HEALTH.[1]

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In general terms the objects of my discourse will be to indicate the claims of my subject upon the interest of not only medical men but the public; to do justice to Nature, or more correctly Providence, as regards the instinctive provisions for alimentation, and to point out certain popular errors in relation to diet affecting injuriously personal and public health. I do not propose to treat of the subject in any of those aspects which may be distinguished as scientific; but the positions which I shall take, while they are in harmony with the facts of science, will have their basis in reason, experience, and common sense.

The necessity of food is, of course, recognized as a fixed fact. Every one knows that we must eat to live. To the statement of this fact is often added another statement, namely, we do not live to eat. Now I claim that we are not to eat merely to live. Alimentation has ends beyond simple existence. We must eat to secure the complete development and growth of all parts of the organism. Thereon depend the maturity and perfecting of all the functions, mental as well as vital. Eating is indispensable for attaining to the capabilities of body and mind. It is equally indispensable for maintaining these capabilities. In other words, health in its broadest sense, psychical as well as physical, is dependent on food. . . . .

The instinctive provisions for alimentation are inherent in hunger, appetite, and taste. These physiological faculties have obviously alimentation as their final cause. In the inferior animals they suffice for the requirements of nutrition. In man, reason is brought to bear upon these as upon other requirements of the body; hence arises a capital distinction between man and inferior animals, namely, in the preparation of food. It may certainly be assumed that Providence has not instituted hunger, appetite, and taste in order to have them repressed

[1] Abstract of a paper read before the American Public Health Association.

or antagonized. Normal instincts having obvious reference to the needs and welfare of the organism are entitled to precedence over human judgment. They are guides to be followed, reason and experience providing certain regulations for their exercise but never contravening them. Let us make a practical application of these truisms. Hunger, as we know, in an extreme degree absorbs every sentiment and enchains the will. Existing for a certain time, the morbid state which it denotes ends in death. If after prolonged abstinence the means of satisfying hunger be obtained, the craving for food cannot be at once fully gratified without risk. Here is an example of the regulation of this instinct by experience. Appetite and hunger are different degrees of the same instinctive sense, but there is this difference between them: the one is physiological, the other pathological. The sense of hunger denotes an abnormal condition, whereas appetite is a normal expression of the need of alimentation. In addition to this significance appetite has another, namely, the quantity of aliment needed. The requirements of health are that the desire for food be heeded without delay, and fully satisfied. Do popular notions correspond to these requirements of health? In my young days it was often enjoined as a capital maxim in dietetics, that one should always rise from table with a good appetite. We do not now hear this maxim so often quoted, but not a few still in a measure act upon it. Persons sometimes express, with a feeling akin to remorse, regret that they have not resolution enough to put the idea into practice. Another idea, quite as prominent now as then, is that food should never be taken except at certain times, no matter how great may be the desire for it. Exact regularity of meals, and an amount of food more or less under that indicated by the instinctive want of it, have been and are considered good sanitary rules. They probably grew in part from a medical doctrine now obsolete, that most diseases arise from overeating. This doctrine had its fullest development in Abernethy's day, when the practice of medicine consisted largely in the administration of blue pills followed by "black draught." . . . . Other than sanitary considerations have been and are still involved in the popular notions of which I am speaking. Not a few of those engaged in intellectual pursuits have been led to believe that a full diet tends to impair the faculties of the mind, and to debase the finer sentiments of our nature. . . .

Physiology, experience, and common sense are alike opposed to these popular notions. The conditions for perfect health are *first*, a sufficient appetite; *second*, the gratification of normal appetite before the want of food reaches the abnormal degree expressed by hunger; *third*, the satisfaction of appetite by an adequate quantity of food. These conditions are fulfilled by compliance with the instinctive provisions for alimentation. But it will be asked, is appetite infallible as a guide in dietetics? Following it as a guide, is food never taken beyond the requirements of

health? I answer, it is a reliable guide under normal circumstances. The inevitable circumstances of life are often not altogether normal, although producing no distinct morbid affection. If appetite be not infallible, it is at all events more reliable than rules based on theoretical ideas, popular notions, or on purely physiological data. Moreover, it was evidently not intended that the quantity of food should be accurately adjusted to the needs of the economy. To do this is impossible, and therefore it is necessary to elect between the risk of taking either more or less food than enough. Which is to be preferred? Undoubtedly it is vastly better to incur the risk of taking too much than too little. Nature provides for a redundancy, but there is no provision against a persistent deficiency. *Ex nihilo nihil fit.*

As in appetite we have a guide in respect to the times of taking food and the quantity to be taken, so taste is a guide in respect to the kinds of food required. Not only has the physiological purpose of gustation been ignored, but there are many at this day who still look on the enjoyment of gustation as at least bordering on sensuality and sin. Hence coarse food and poor cooking have been thought to be conducive to health. . . . . The simple rule is not to allow temptations incident to taste to lead beyond the satisfaction of a normal appetite. . . . .

It is an error to suppose that one can judge with accuracy, from personal sensations, of the effect of different articles of food. Experience thus obtained is often fallacious. The functions of digestion are liable to be disturbed by many causes, intrinsic and extrinsic, irrespective of diet; the disturbances, however, are often erroneously attributed to particular articles which happened to have been eaten. Nothing is more common than to hear persons say that milk and eggs never agree with *them*. These are the two types of a complete aliment, combining all the alimentary principles required for nutrition. It is safe to say that the notion that there are some healthy stomachs which cannot digest these articles of food, if not purely a theoretical notion or a whim, is derived from fallacious experience. An exaggeration of individual idiosyncrasies is a common error. The idea of innate peculiarities of the physical constitution is a not uncommon form of egotism. There is something congenial to self-love in the thought that one is not altogether constituted like other people; it is a congenital mark of distinction.

Another error is the supposition that the functional ability of the digestive organs is maintained in proportion as they have little work to do. Physiology and experience teach otherwise. It is a law of the living organism that deficiency of functional exercise impairs function, and that prolonged suspension of function leads to organic changes which destroy functional capacity. . . . .

Mr. Chairman, my subject, as I stated at the outset, is a large one;

it touches the sources of public health. It touches the question of either the progress of our people in mental and physical vigor, or, on the other hand, degeneracy of mind and body. I cannot follow it into these relations, but the importance derived therefrom has, I trust, been rendered somewhat apparent by the views which I have presented in this discourse.

CHANGE IN THE NUMERATION OF SPECTACLE LENSES; ADOPTION OF THE METRICAL SYSTEM.

BY HASKET DERBY, M. D.

WITHIN the past year the inch has been discarded and the metre adopted as the unit in the numeration of glasses and the expression of degrees of refraction and breadth of accommodation. I desire briefly to state the reasons that have led to this change, and to explain the new method.

A one-inch lens, the unit of the system so long in use, was a lens that brought parallel rays to a focus one inch behind itself. Held one inch from the wall of a room it would form thereon the perfect picture of a window at the opposite end of the same chamber. The radius of its curvature was substantially its focal distance — one inch.

This lens had, however, no real existence for the surgeon. Too strong for practical purposes, it was found in no spectacle case. The most powerful convex glass, used for the near in cases where the crystalline had been removed, was one that had a focal distance of two inches and was consequently half as strong as the unit, having to be expressed by the fraction $\frac{1}{2}$. The next in order was $\frac{1}{3}$, and so on through the series. Moreover, to obtain for cataract patients intermediate lenses, these fractions themselves were subdivided, and we thus had $\frac{1}{2\frac{1}{2}}$, $\frac{1}{2\frac{2}{3}}$, $\frac{1}{2\frac{3}{4}}$, etc. The series ran up to $\frac{1}{7\frac{1}{2}}$, giving thirty-two glasses, all expressed in vulgar fractions, the differences between which necessitated constant calculation. These very intervals were, moreover, unequal, varying as they did from $\frac{1}{36}$ to $\frac{1}{18}$.

But a not less serious objection to this method lay in the fact that the standard itself was variable, and that to ascertain the strength of a given number, especially a high one, it was necessary to find out in what country it was ground. The Paris inch differed from the English, 36.94 of the former, 39.37 of the latter going to a metre. Between these came the Rhenish and the Austrian inches, all differing from each other. A patient asking for No. 2 in London, Paris, Berlin, or Vienna might receive a different glass in each place.

At the meeting of the Heidelberg Society in the autumn of 1875, and shortly afterwards at the Medical Congress in Brussels, Professor

Donders proposed the metre as the unit of numeration. The metrical system had already been adopted for other purposes in many countries, and was likely to be used for the expression of the focal distances of optical instruments in all, excepting perhaps England.

The new No. 1, therefore, is a lens ground on a curve whose radius is one metre, and having a focal distance of one metre, corresponding very nearly to $\frac{1}{36}$ of the former (French) series. This glass is called a "dioptric." No. 2 is equivalent to two dioptrics, is consequently twice as strong as one dioptric, has its focal distance in half a metre, and corresponds nearly to $\frac{1}{18}$. No. 3 has its focal distance in one third, No. 10 in one tenth, No. 20 in one twentieth of a metre, and consist respectively of three, ten, and twenty dioptrics, being precisely that number of times stronger than No. 1.

Such is the simplicity of the whole system. To obtain glasses feebler than No. 1 we divide the dioptric expressing its divisions by decimals, 0.25, 0.50, and 0.75. These fractions may moreover be used between the weak numbers of the series, up to 6. But there are no vulgar fractions, and pencil and paper are never necessary for our calculations. Two No. 2's make one No. 4; 1.50 and 3.50 make 5; the difference between 2.50 and 2.25 is 0.25, or quarter of a dioptric. The new trial cases of lenses contain thirty numbers, the difference between each of which may be calculated instantly. In using the new system we speak of a myopia or hypermetropia of so many dioptrics (expressed by the letter D). Presbyopia is estimated by the number of dioptrics necessary to bring back the near-point to 22 centimetres (about 8 inches), and the width of accommodation is the number of dioptrics embraced in the lens equivalent to the increased convexity of the crystalline, when changed in adaptation from its far to its near point. Thus, to cite the example given by Donders, let the near point be in one fifth of a metre, and the far point in a metre, the accommodation (A) $= 5 - 1$, equals 4 dioptrics.

But one or two points remain to be considered. The numbers of the new glasses do not express their focal distances. These may, however, readily be found by dividing a metre by the number of the glass. No. 4 has a focal distance of $\frac{1}{4}$ m. or 25 cm; No. 10 of $\frac{1}{10}$ m. or 10 cm.

The reduction of these glasses to the old system, and the change from the old to these, is equally simple. Our previous glasses are numbered in Paris inches, 36 of which may for convenience in calculating be taken to represent a metre. Divide the new number by 36 and we practically obtain the old: 2 D equals $\frac{2}{36} = \frac{1}{18}$; 3 D $= \frac{3}{36} = \frac{1}{12}$; 9 D $= \frac{9}{36} = \frac{1}{4}$. To change the old to the new, multiply by 36: $\frac{1}{4}$ becomes $\frac{36}{4} = 9$ D; $\frac{1}{9}$ becomes $\frac{36}{9}$ or 4 D; $\frac{1}{15}$ becomes $\frac{36}{15}$ or 2.50 D.

At my suggestion Nachet has added to his new cases of metrical test lenses a printed table giving their respective values in terms of the

previous system. This will facilitate the change for those of us long used to the old numbers.

This system of Professor Donders has been adopted by the most eminent ophthalmologists. Snellen, Giraud-Teulon, Nagel, Javal, Wecker, and Carter at once gave in their adhesion to it, and its use is daily spreading. And in our own country the surgeons of the Boston Eye Infirmary voted, at a recent meeting, "that all future measures of length and refraction be recorded in, and all glasses ordered on the metrical system.[1]

A CASE OF POISONING BY BROMIDE OF CADMIUM.

BY GEORGE A. WHEELER, M. D., CASTINE, MAINE.

As this is the first case, so far as I am aware, of poisoning by the use of the bromide of cadmium, I am induced to make it public. The history of the case is as follows.

A patient of mine, Mrs. N., residing in this town, has been in the habit of taking, by my direction, occasional doses of bromide of ammonium. On Friday, September 8th, feeling some premonitory symptoms of neuralgia, and having none of her usual medicine by her, she sent to the druggist in this town for one ounce of the bromide of ammonium. The druggist sent her an ounce bottle labeled bromure d'ammonium. It resembled, as seen in the bottle, the veritable salt which it purported to be. Upon receiving it she took out upon the handle of a teaspoon the same quantity, as nearly as she could judge, that I had been in the habit of giving her, poured it into a tumbler two thirds full of water, gave her mother, Mrs. R., half of it, on account of a headache, and swallowed the rest herself. She at once perceived the difference in the taste of it, and without waiting to perceive any further effects sent her servant to me with the bottle, with a request that I should tell her what it was and whether she should take any more. Upon looking at the bottle and reading the label I supposed that it was all correct, and that she had sent to me as a matter of caution on her part. To make sure of it, however, I wet my finger and took out of the bottle what would adhere to it and put my finger in my mouth. I noticed at once the extremely pungent taste, and felt sure that it was a corrosive poison of some kind. I immediately made my preparations to go to the patient's house and see in what condition she might be. Before I left my own premises, however, I was met by a messenger who told me that Mrs. N. and her mother were very ill, and thought they were poisoned. On arriving at the house I found both ladies vomiting severely, and complaining of extreme pain and a burning sensation in the stomach. Mrs.

[1] Thaxter and Brother, 291 Washington Street, and J. H. Ailman, 14 Bromfield Street, are prepared to fill metrical orders, and to furnish suitable prescription blanks.

R. was also purging freely, though her daughter was not. Not knowing what the poison was, I could give no chemical antidote, and had to content myself with giving white of egg, sweet oil, milk, etc., and after a few hours, to counteract the depression of the system, I gave brandy and water. The vomiting and purging lasted fully five hours, and during a part of the time the pulse was imperceptible in either patient. After this period the symptoms ameliorated, and they both fell asleep. For several days they were both confined to their beds, and were obliged to be extremely careful as to what they took into their stomachs. Mrs. N. seems now to have completely recovered. Mrs. R., however, has not been as well as before this occurrence, but has suffered with some cerebral symptoms which betoken a tendency to apoplexy. It may be doubtful, perhaps, whether this condition has anything to do with the poisoning. No cerebral symptoms were present at the time. Mrs. R. says that when taking the solution she noticed a very decidedly sweet taste. Neither Mrs. N. nor myself noticed it, however. The amount taken by me caused no nausea or vomiting, but did produce a severe burning sensation in the mouth, œsophagus, and stomach, which lasted perhaps an hour. It is impossible to estimate the amount taken by either of these ladies. My dose of bromide of ammonium to Mrs. N. had been eight grains. They may each have taken half of that amount, or twice as much.

Having satisfied myself that the poison was one that I had never before seen, I at once sent a sample of it to Mr. H. Carmichael, Professor of Chemistry at Bowdoin College and Assayer for the State of Maine. Professor Carmichael soon informed me that the article sent was the bromide of cadmium. The following were the tests he employed: —

(1.) Dissolved in water and treated with sulphuretted-hydrogen gas, a yellow precipitate is formed which is insoluble in ammonic sulphydrate.

(2.) Mixed with cyanide of potassium and heated in a closed glass tube, the cadmium is reduced to the metallic state.

(3.) Mixed with dipotassic sulphate and binoxide of manganese in a closed glass tube, the blood-red vapor of bromine is given off.

No fault whatever, I am happy to state, rests with the druggist here. He has kept bromide of ammonium in considerable quantity for a long time. At the time he obtained this bottle his supply had given out, and he had ordered a quantity from Boston. As it would be a week or more before this would arrive, he at my suggestion sent to the neighboring town of Orland for a small quantity, and had this bottle of bromide of cadmium sent. He sold it exactly as he received it, without taking off the outside wrapper of the bottle.

In all probability the error in labeling does not belong to the druggist

in Orland, though he seems entirely ignorant as to how long he had had the bottle or where he got it. He had, however, in his store another bottle exactly similar, and likewise wrongly labeled.

The gross and wicked carelessness probably lies at the door of the French preparers of it. Does no blame, however, attach to the importers for not knowing what they were issuing? As there may be hundreds of bottles thus wrongly labeled, I here give the exact labeling of the bottle, that all physicians and druggists who see this account may be on their guard. The label is as follows: —

Maison W^M^ CONRAD
ET. ROQUES et Co, Succrs

1 oz Bromure d' Ammonium angl.[1]

26, rue Vieille-du-Temple,
Paris.

All the soluble salts of cadmium are said to be corrosive poisons, but I can find nothing in regard to the action of this particular salt. As it is never used as a medicine and but little in the arts, except by photographers, it is doubtful whether it has ever been taken before.

RECENT PROGRESS IN THE TREATMENT OF THORACIC DISEASES.[2]

BY F. I. KNIGHT, M. D.

Differential Diagnosis by Physical Signs of Different Kinds of Pleural Effusion, Baccelli.[3] — Dr. Valentiner gives a brief communication concerning the views of Professor Baccelli, of Rome, on this subject. Hitherto we have been taught that it is possible by means of physical examination to diagnose the presence of fluid in the pleural cavities, but that no auscultatory differences resulted from different kinds of fluid; in other words, that dropsical, sero-fibrinous, and purulent fluids were all alike in the transmission of sounds to the ear of the listener.

Baccelli's work goes to prove the very opposite, namely, that the variety in the auscultatory phenomena will enable us to form an opinion as to the nature and constitution of the fluid in the pleural cavity. In order to form such a precise diagnosis, all disturbing sounds must be as far as possible excluded. The person whose chest is being auscultated should turn his face whilst speaking in a direction which is as nearly as possible at right angles to a horizontal line drawn through the middle of the effused fluid. The ear which auscultates should be

[1] The words inclosed by the lines are written, not printed.

[2] Concluded from page 415.

[3] Berl. klin. Woch., No. 21, 1876; London Med. Record, August 15, 1876.

pressed close against the chest which is examined, and the free ear should be closed with the index finger of the corresponding hand. By auscultating in this method, Baccelli has found that the thinner and more homogeneous the fluid in the pleural cavity is, so much the more easily, perfectly, and to greater distance will it transmit the vibrations of the voice, and even whispers. The principal conduction of sound is at the lower part of the collected fluid; whispered words are here most clearly accentuated with bronchial expiration, when the fluid is nearly homogeneous (serous effusions). The upper part of the effusion conducts sound worst, for there neither bronchial breathing nor loud talking can always be heard. In proportion to the thickness of the fluid, the conduction of sound is hindered. Hence effusions with fibrinous flakes or with blood and pus corpuscles conduct sounds badly. A true empyema is the worst conductor of sound of all the effusions. Fluids with granular corpuscles, fat and fat-crystals, and other not morphological or fibrinous elements, behave, as regards auscultation, very much like hydropic effusions. The physical explanation appears to be as follows. Unlike gases, fluids conduct tones with intensity proportioned to their likeness and homogeneousness, whilst the waves of sound are conducted somewhat more quickly, but with diminished intensity, through thicker and heterogeneous fluids, which are mingled with elastic solid bodies. In the case of mixed coagula and corpuscular elements, as well as in the case of exudations inclosed in thick, villous membranes, there is, in consequence of this mixture and variety of conducting media, more and more reflection (refraction?) of the sound-waves, instead of their being conducted in almost straight lines, as in the case of homogeneous endo-pleural fluids, which are strong conductors. At the point where the lung is most compressed, towards the base of the exudation, the sound waves are probably reflected but little, and thus little decomposed. In other words, they are not much affected by interference at this spot. It is perhaps on similar acoustic principles that a pericardium so distended with fluid as to be absolutely dull on percussion often conducts bronchial râles from adjacent portions of lung with remarkable clearness (Skoda's consonance, or phenomena of resonance of Baccelli).

Action of Climates on the Treatment of Pulmonary Phthisis. — Dr. H. Gouraud[1] says, If we merely desired to discover the places on the face of the earth where phthisis is absent or rare, the task would be comparatively simple. They are to be found from the stations of Southern France and of Italy, even to Norway, the Faroe Islands, and Iceland; from mild, humid insular stations to the steppes of the Kirgoi, with their eminently dry climate. Norway, Iceland, and the Faroe Islands have cold, humid climates, and yet appear to enjoy an immunity

[1] London Medical Record, July 15, 1876, from L'Union médicale.

from phthisis. On the other hand, the cold and dry steppes are now much employed in combination with the use of koumiss. Patients are sent in forty hours by rail from St. Petersburg to Nijni-Novgorod, and from that place to Samara, in the steppes, in twenty hours by steamer. There they stay from May 1st to October 1st. What greater contrast can there be than that between the steppes of Russia, the South of France, and the climate of Madeira? Yet all are sought for the same object. Granting that many of these places enjoy a considerable degree of immunity from phthisis, why does this immunity not extend to visitors? The answer is, Because phthisis is not a product simply of climate. It is also a social disease. If there be any fact certain, it is this, that the more people become crowded together, the more industries are developed, the more does phthisis show itself. Crowding in small rooms at home, too early labor, the inhaling of foul air or of deleterious particles in manufactories, a too sedentary life, are frequent causes of phthisis. The great centres of industry are the places which yield the highest mortality from it. As climate is not the sole cause of phthisis, so climate alone will not produce immunity from it. The absence of a particular malady from a place does not prove that the place is a prophylactic against that malady. A climate may have tonic and exciting properties which favor the nutrition and the good health of persons born in that climate, and employing a diet and mode of life suitable to it. Yet the same tonic and exciting qualities may not suit subjects already attacked by such and such maladies, and having irritable or vulnerable organs. The immunity of the natives of a place from any particular disease, therefore, only furnishes a reason for studying it in its climatic relations. Immunity of itself affords no guarantee for patients; but if it is proved that there are fewer sick of a given malady, say at a certain elevation, this fact is so far favorable to altitude. If, further, it is verified by direct observation that patients in such stages of their complaints derive benefit from residing in the mountains, this is enough to recommend mountains, especially if they have already tried other climates without advantage.

It seems now to be generally admitted that the number of cases of phthisis diminishes as the elevation increases. How is this to be explained? In the first place we must allow that many of the factors of phthisis are absent at a certain elevation, that is, all of them that are connected with social life and aggregation; but besides this, what further explanation have we? Hirsch says that it is because the alternations of temperature are less marked in the mountains than on the plains. Brehmer says that the air is more tonic and favorable to nutrition. Jourdanet says that the cause is the deficient supply of oxygen. It is true that the relative proportions of oxygen (21) and of nitrogen (79) are the same in the mountains and on the plains, but as the

higher layers of the air have less density, the quantity of oxygen in them for each inspiration is less. Experiments have shown that the quantity of oxygen in a litre of air at the height of fifteen thousand feet is about one half what it is on the plains. The result of this is that, in order to get the necessary supply of oxygen, the inspirations become deeper and more complete, and that the thoracic cavity increases in capacity. The pulmonary cells, dilated and enlarged, become to a certain degree emphysematous, and in the end produce the dyspnœa called asthma montanum. It seems also probable that the increased expansion of the pulmonary cells leads to a certain degree of anæmia of the lungs, and this anæmia, like emphysema, is considered to be antagonistic to tuberculosis. The diminution of atmospheric pressure causes a derivation from the centre to the circumference, and produces a real revulsion towards the cutaneous surface. To these causes Lombard adds a certain excess of carbon in the system, consequent on the diminished supply of oxygen, and he thinks that this has something in common with the state induced in islanders (who enjoy immunity from phthisis) by the free use of oils and animal fats or butter. We thus understand how mountain air may be useful in certain cases and in certain periods of phthisis. It acts by its purity, by its dryness and transparency, as well as by the diminution of atmospheric pressure. Gouraud concludes by observing that after all neither barometer nor thermometer, neither hygrometer nor anemometer, can determine what is the suitable climate for such and such a phthisical patient. All depends on the nature of his constitution, and on the way in which the various meteorological conditions affect him.

Dr. Dennison, of Denver, Colorado, read a paper before one of the sections of the International Medical Congress at Philadelphia, September 7th, on the influence of high altitudes on the progress of phthisis.[1] His deductions from analysis of cases were as follows: (1.) Cool, dry climates are best. (2.) Favorable climatic attributes, such as diathermancy and dryness, are increasingly found with increasing elevation. (3.) High altitudes are favorable in incipiency of chronic, inflammatory, and hæmorrhagic cases of phthisis; in others, the more acute the inflammatory process, or more active the pulmonary hæmorrhage, the more tentative should be the rise in elevation. (4.) Partial recovery necessitates permanent residence. (5.) High altitudes become unfavorable or negative in proportion as phthisis is complicated with certain forms of cardiac disease, or the stage of "softening," in acute cases, with extensive deposit, or nervous irritability and lack of desirable willpower. (6.) Early change of climate and mode of life are more positively favorable to cure in a resort to high altitudes. (7.) Stimulating effect of high altitudes on respiratory organs is a most important agent

[1] New York Medical Record, September 23, 1876.

in arresting chronic phthisis. (8.) High altitude is palliative or curative with or without change of occupation and out-door life. (9.) In incipient cases the patient should receive benefit of doubt, in view of possibility of error in declaring non-existence of phthisis. (10.) Resort to a well-chosen, elevated climate should form part of a physician's advice to every consumptive, unless specially contra-indicated.

Syphilitic Phthisis. — Fournier,[1] in an elaborate lecture on the pathology and clinical features of syphilitic phthisis, recognizes only two forms of syphilitic lesions, (1) simple hyperplasia and (2) gummata, and says that the diagnosis of this disease is very difficult. There is a remarkable tolerance of the lesions by the system, even when they are extensive, the patient retaining his flesh and strength to a considerable degree. When this is the case syphilis should be suspected. M. Fournier admits that this tolerance of the system is seen also in scrofulous phthisis, and therefore cannot be depended on for diagnosis; but he advocates in all doubtful cases the application of specific treatment, which will soon settle the question. The treatment recommended consists of large doses of iodide of potassium (two to six grammes daily), and small quantities of mercury by inunction, fly-blisters, cupping, and iodine locally, cod-liver oil, bark, etc. M. Fournier ends with the following axioms: (1.) Tertiary syphilis can produce in the lungs lesions which either locally, or by reacting on the general health, simulate pulmonary phthisis. (2.) These pulmonary lesions of syphilis are often amenable to specific treatment. However grave and important they may appear, they are far from being always beyond the resources of art. (3.) Consequently, when a case of pulmonary lesion presents itself, it is important, unless the existence of tuberculosis be quite certain, to ascertain if the lesion can be traced to syphilis. It is necessary always to bear in mind that syphilis is a possible cause of pulmonary lesions. (4.) When syphilis can be suspected to be the cause, the primary indication is to prescribe specific treatment, which in similar cases has been sometimes followed by the happiest results.

Puncture of the Pericardium. — In a paper communicated to the Académie de Médecine, by M. Henri Roger,[2] the author dwells upon the difficulties in the diagnosis of pericardial effusions, and he quotes in illustration two cases operated upon by Tigla and Trousseau, in one of which a thin-walled dilated heart was mistaken for an effusion into the pericardium; in the other case an hypertrophied heart, surrounded by membrane floating in only a small quantity of serosity, was found post mortem. But even when the diagnosis is made, it is very difficult to decide on puncture, inasmuch as the grave symptoms may not be due

[1] Gazette hebdomadaire de Médecine et de Chirurgie, November and December, 1875; London Medical Record, July 15, 1876.

[2] Bulletin de l'Académie, No. 44, 1875; London Medical Record, July 15, 1876.

simply to the presence of the effusion, and operation may do serious injury (in six out of fourteen cases collected by Roger, death followed so closely that it seemed to be attributable to or at least hastened by the operation). We must not forget, either, that evacuation of the serum in a case of acute pericarditis will almost necessarily be followed by pericardial adhesion.

Paracentesis of the pericardium is a far more delicate operation than puncture of the chest cavity. The mammary artery coursing along four or five millimetres from the margin of the sternum, the diaphragm, the left lobe of the liver, sometimes much enlarged, the lung and pleura, and finally and most importantly the heart itself, have to be avoided by the surgeon. M. Roger quotes two cases, one of M. Baizeau's and one of his own, in which the right ventricle was apparently punctured in operations designed for the relief of effusion into the pericardium, and one hundred and two hundred and twenty grammes of venous blood respectively removed. Both cases survived the operation. Another disagreeable occurrence which may happen, even if the right place be chosen, is that the puncture is followed by no escape of fluid. The pericardium, being only in lax connection with the wall of the chest, and much thicker and harder than the pleura, readily recedes before the trocar. With the fine needle of the modern aspirator, however, this is less likely to happen. The puncture should always be made directly from before backwards, with a slight subsequent inclination of the point of the needle downward, as advised by Dieulafoy, in order to avoid the ventricle during systole. The fifth intercostal space at a point intermediate between the sternum and the nipple, but rather nearer the latter, is the place to be chosen, as a rule, for puncture. But the heart's apex, instead of impinging against the fourth space or fifth rib, as is usual in such cases, may be lowered by dilatation, or drawn downwards by an adhesion to the diaphragm, when a lower point must be chosen for the puncture.

In only one case of the fourteen was a "true cure" effected, and M. Roger concludes that, notwithstanding undoubted improvement in the modern operation, it remains a dangerous and doubtful remedy, to be hazarded in extreme cases.

DWIGHT ON THE ANATOMY OF THE HEAD.[1]

A MONOGRAPH on pure anatomy does not appeal to the interest of general readers. That one hundred and thirty octavo pages should be devoted to a minute accoun tof so limited, if important, a part of the human frame, with the

[1] *The Anatomy of the Head.* With Six Lithographic Plates representing Frozen Sections of the Head. By THOMAS DWIGHT, M. D., Professor of Anatomy at the Medical School of Maine, etc. Boston: H. O. Houghton & Co. 1876.

knowledge that it will find comparatively few readers except among teachers and students, is evidence of the progress which is making in the requirements of professional study. As a community we may, in some degree, take credit to ourselves that, although emanating from a gentleman holding a high position in the Medical School of Maine, this treatise is also the work of a teacher identified with our own city and with the Medical Department of Harvard University.

Professor Dwight's Anatomy of the Head is no holiday book in which learning is sought to be made attractive by "side issues." It offers few distractions of either comparative anatomy or surgery. Including all above the hyoid bone as belonging to the head, he describes, in consecutive order, The Skull, The Brain and its Membranes, The Skeleton and Superficial Parts of the Face, The Orbit, The Nose and Neighboring Cavities, The Region of the Ramus of the Jaw, The Pharynx, The Parotid Region, The Ear, The Occiput, The Circulation, and, finally, The Innervation. The descriptions are from nature, and represent the usual and typical anatomy only, each topographical region being described in all the mutual relations of its parts. The preface justly remarks that this method of instruction is somewhat overlooked in America, attention being directed chiefly to descriptive anatomy, and the relation of parts to one another neglected unless of evident surgical importance. A number of wood-cuts and six lithographs of frozen transverse sections of the head illustrate the text.

This method of illustration, originating with the distinguished Russian surgeon, Pirogoff, was first introduced, on a large and magnificent scale, by Wilhelm Braune, in a great atlas of thirty-one plates (Leipzig, 1872). It certainly presents advantages, and is of special interest to the skilled anatomist. It is, however, of so novel a character that we hardly feel able to express an opinion as to its usefulness in the illustration of a part of the body so complex and intricate as that which forms the subject of this volume. The author himself affirms that *section* can never take the place of *dissection*, maintaining only that it affords views not to be obtained in any other way, and encourages the kind of study which teaches anatomy in its most practical aspects.

It will surprise the reader to see in how brief a space an admirable account of the general construction of the brain is given. Commencing with the medulla oblongata, the various parts are described as they expand from this central point, while by following the fourth to the third and lateral ventricles the interior of the brain is, as it were, unfolded to view.

Among the newer points of anatomy which attract attention may be mentioned the fact that the temporal ridge is made up of two curved lines. Starting from the external angular process of the frontal bone the upper one runs over the parietal eminence to the lambdoidal suture, which the lower one never touches. The latter crosses the lower part of the parietal bone to the root of the zygoma. The lower curved line marks the origin of the temporal muscle. The upper curved line serves for the attachment of the temporal fascia.

The curious facts are stated that the mouth is kept closed mainly by atmospheric pressure, assisted by the adhesion of the mucous surfaces of the tongue

and palate, and not by muscular action; and that the tongue almost completely fills the mouth, the soft palate lying in contact with its posterior portion, the uvula, when of ordinary size, approaching closely to the epiglottis. This point is well shown in Plate IV. of the frozen sections, and practically illustrates the irritation caused by an elongation of this portion of the soft palate.

The sublingual bursa, "overlooked by many authors, but lately very well described by Tillaux," is not unfamiliar to surgeons. It lies behind the sublingual glands, extending as far back as the second molar tooth, and is partially subdivided by the frænum. It is lined with epithelium, and contains numerous small chambers.

The pages treating of the mouth and pharynx constitute one of the most interesting portions of the book.

Dr. Dwight's volume thus briefly noticed does not admit of quotation or of review at length, except by those who are his peers in anatomical knowledge; but we commend it to every student or reader interested in its subject for patient and rewarding perusal. As a new version of an old story it appeals with especial interest to those who have experienced the delights and quiet enjoyment of painstaking dissection or careful anatomical study. It emphasizes the fact that descriptive anatomy is no exhausted science, and attests anew that the combined exercise of observation and thought offers opportunities by which whoever wills may still rival or even surpass those who have already been its votaries.

NEW YORK STATE LUNATIC ASYLUM.[1]

This asylum has been established thirty-three years, during which time eleven thousand eight hundred and thirty-one patients have been under treatment. Of this number thirty-seven per cent. have recovered, fifteen per cent. have been much improved, and about twelve per cent. have died. The average number under treatment last year was five hundred and ninety-five. The medical staff consists of the superintendent, Dr. Gray, four assistants, and a pathologist. This is the first instance in this country where the State has authorized special pathological investigations. Dr. Gray says that systematic microscopic observations were made here and reported a year before similar experiments were instituted at the West Riding Asylum, England. The importance of a systematic use of such rich stores of material as every large asylum affords cannot be too strongly urged upon state authorities.

The present report gives the history and complete necropsy in twenty-two cases, which we may find time to examine and condense for the readers of the Journal hereafter.

Dr. Gray reports among the admissions of thirty-three years one hundred and seventy-three as "not insane," which would prove a rather startling item were it not explained that under this head are classed dipsomaniacs, opium-eaters, hysterical cases, and cases of delirium which are sometimes mistaken for permanent insanity. That none of these cases were the result of fraud or

[1] *Report of the State Lunatic Asylum at Utica, N. Y.* 1875.

conspiracy is evident from Dr. Gray's cordial indorsement of a series of resolutions recently passed by the association of superintendents, which he prints entire in his report. Resolution eight says, "that sane persons are often falsely imprisoned on the pretense of insanity is not true, and we believe it is extremely rare that a single case of wrongful imprisonment in any hospital in this country has taken place."

These resolutions are directed against the unwise and meddlesome legislation now in force in some States (such as trial by jury in every case of admission, as in Illinois), whereby mistrust is engendered instead of confidence, and the physician's efforts to lead his patients into the light of reason are hindered by restrictions and interference on the part of those who know nothing of the workings of the insane mind. In regard to the locked letter-boxes posted in each of the asylums in some States (our own, for instance) they say, "it is incessantly proclaimed to each patient from the walls of his apartment that the people to whom he has been intrusted are not trusted by others, and that any aid and comfort he may require must be sought from a power paramount to theirs." The valuable information to be obtained from letters respecting the mental condition of patients is mentioned, and any law which compels or allows the sending of the letters of women, often containing matter the very thought of which, after recovery, will overwhelm them with mortification and dismay, is denounced as an outrage on decency and common humanity.

The trustees, in their part of the report, say that they have always favored the plan of general asylums situated in centres of population, each to accommodate all the insane within a given area. When the Willard Asylum for chronic insane persons was established, several years ago, a law was passed that no patient whose insanity was of more than a year's duration should be received at Utica. This law has worked imperfectly, and has been but partly carried out. The effect has been that patients from distant parts of the State have not availed themselves of hospital treatment until the best time for treatment has passed; and cases in the vicinity, where the disease has been allowed to exceed a year's duration, have been cut off from hospital treatment entirely. That many cases recover after the limit fixed by this law is well known. In the last year, at Utica, of one hundred and thirty-two recoveries, in twenty-one insanity had existed from one to eight years before admission, and forty-one had been under treatment from one to five years in the asylum.

The facilities for occupation and amusement at Utica are excellent. The farm, shops, kitchen, laundry, and sewing-room serve to employ time usefully, while riding, walking, reading, lectures, and games make it pass pleasantly. A convenient and well-appointed theatre, with an amateur company of officers and patients, furnishes, with occasional outside assistance, a very valuable form of entertainment.

Dr. Bucknill, in his recent tour, visited Utica, and highly commended its management. This gentleman's comments and criticisms are generally fair and discriminating, except when he mounts his English hobby of absolute disuse of mechanical restraint, and runs a tilt at some American windmill. The universal doctrine, on this side of the water, is that this form of restraint is occasionally necessary, and that its use should be left to the discretion of each

superintendent, like any other form of treatment. It is resorted to by the friends of patients, at home, more freely and in more objectionable forms than by asylum officers. Dr. Gray reports, out of four hundred and thirty-two admissions, fifteen as brought to the hospital under restraint: eleven wore handcuffs, one shackles, one camisole, one muff, and one straps. This is nearly four per cent., or twice as many instances of restraint as is usual in hospitals. It will not excite surprise when we consider the popular fear of insane violence, and learn that of the whole number (four hundred and thirty-two) admitted, one hundred and twenty-three had made homicidal or suicidal threats or attempts.

Dr. Bucknill was pleased to find no restraint in use at the time of his visit, and quotes Dr. Gray, in one of his letters to the *Lancet*, as saying that he differed from his American brethren on this subject. The inference was that no mechanical restraint was ever allowed at Utica. This being so, we were horrified to notice, in the list of articles made last year by the tailor, this item, namely, "2 camisoles"! T. W. F.

ROBERTS'S THEORY AND PRACTICE.[1]

The appearance of a second American edition of this valuable work is an indication of the appreciation in which it is held throughout the country. We have little to add to our notice of the former edition,[2] but we take pleasure in observing that there is a new chapter on the Diagnosis of Acute Specific Diseases, besides other additions, and that the book has received the careful revision which recent observation and the latest advances in knowledge require.

A PEOPLE WITHOUT CONSUMPTION.[3]

Dr. Wight, in a little pamphlet of eight pages, gives an interesting account of the people, four thousand in number, who live on Walden's Ridge. He has not been able to find that a well-authenticated death from consumption ever occurred among the natives. The ridge is from two thousand to two thousand five hundred feet high. The mercury has never been known to be above 95° F. or below —10° F. The people live mostly in log-houses, which admit plenty of fresh air, burn wood, wear no flannels, and live on corn-bread, bacon, and coffee. They are mostly farmers and very few appear to work hard. The Cumberland table-land, of which this ridge is a part, seems to offer an inviting field for those predisposed to pulmonary complaints. It comprises territory enough to make a good-sized State, and the "city of Cincinnati has determined to build a railroad through the very centre of that great table-land in the north part of the State, connecting with Chattanooga in the southern part."

[1] *The Theory and Practice of Medicine.* By Frederick T. Roberts, M. D., B. Sc., M. R. C. P., Fellow of the University College, etc. Second American from the last London Edition, revised and enlarged. Philadelphia: Lindsay and Blakiston. 1876.

[2] Journal, xc. 42.

[3] *A People without Consumption, and some Account of their Country, the Cumberland Table-Land.* By E. M. Wight, M. D., Chattanooga, Hamilton County, Tennessee.

MICRO-PHOTOGRAPHS IN HISTOLOGY.[1]

THE third number of this work has appeared, and we are happy to say that the plates are better than those in the preceding ones. No one could mistake the hyaline cartilage, the bone, or the ossifying cartilage for anything else. There is room for a corresponding improvement in the text, for the descriptions are meagre, and surely might be made more thorough without any very great labor by gentlemen of the experience of the editors. It might be well, also, to explain the methods used in the preparation of each specimen.

T. D.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

FOURTH ANNUAL MEETING.

First Day. Tuesday, October 3d. The association met at the Institute of Technology, the president, Dr. Snow, in the chair. Prof. W. R. Nichols read a brief address of welcome, after which the president made the opening address. He congratulated the friends of sanitary science on the gratifying progress that had been made within the past few years in the promotion and the appreciation of the science, particularly referring to the important work which the twelve state boards of health, established only within the past seven years, were already doing and destined to do in the future. Much was to be expected from them in the prosecution of systematic investigation on sanitary matters. He spoke at length of the unnecessary ignorance which prevailed among the people in regard to diseases which could be prevented. The matter of registration of deaths, which lay at the foundation of all intelligent investigation of the causes of disease, was one very imperfectly attended to in many places, and the amount of popular superstition on health subjects was still very great. How little we knew of the specific causes of disease! Most of our knowledge was of an experimental character, and sanitary progress, at least for a long time, was to be expected mainly in the application of this knowledge. In conclusion, the speaker said that the laborers in this cause had one great encouragement, and that was the certainty of receiving the gratitude of men as a reward of their work, as well as the approval of God.

Mr. Crowell, of the Boston Board of Health, then read a paper on the Sanitary Laws to regulate the Business of Slaughtering a Necessity. Immature calves and other animals whose flesh was unfit for food are killed, and even those that have died by disease or by accident are dressed, and the meat while fresh, or after being corned or manufactured into sausages, is offered for sale in the open market. Moreover, the disposition of the offal and refuse material is necessarily attended with more or less offense. They are often suffered to remain in or about the buildings until decomposition takes place, when they are collected by different parties, one taking the hides, another the fat, another the bones, another the feet, etc, to be transported in different di-

[1] *Micro-Photographs in Histology, Normal and Pathological.* No. 3. By CARL SEILER, M. D. Philadelphia: J. H. Coates & Co. June, 1876.

rections through the public streets, polluting the air with their noxious effluvia, until they reach their several destinations. Here the fat, bones, and other refuse are placed in open kettles or retorts and subjected to heat, which liberates the remaining noisome gases, to the discomfort and disgust of all who live in the vicinity. A still more objectionable method is not unfrequently adopted. The intestines of the slaughtered animals, with other decomposing animal matter, are thrown into piggeries, usually found connected with these slaughter-houses, to be eaten by the hogs, or wallowed in and exposed to the sun, thus becoming the putrid source of the foulest odors, which poison the atmosphere for a great distance from the premises. The hogs fed upon this disgusting material, so fruitful of trichinæ, are slaughtered in the adjoining shed, and the meat sent out to spread disease wherever it is eaten. The drainage of these slaughter-houses, if there be any, is defective, allowing the animal liquids and bloody water filtering through the floors to soak into the soil or to stagnate upon the surface. The reader described the Brighton abattoir, which he said was constructed upon the most approved scientific principles, and is under careful and constant supervision.

The second paper was read by Dr. E. H. Janes, assistant sanitary superintendent of New York, this paper being devoted to the sanitary questions concerning abattoirs and the slaughtering business of New York. It gave some interesting facts in regard to the location, facilities, and sanitary condition of the abattoirs of that city, and the smaller butcheries beyond its limits. The number of beef cattle annually slaughtered in New York was given as three hundred and sixty-three thousand five hundred and fifty, besides seven hundred and fifty that were weekly killed by one concern for exportation. There were also one million one hundred and fifty-five thousand small cattle, such as sheep, etc., and one million two hundred thousand hogs slaughtered annually, though there had been considerable falling off during the hard times. A large part of these animals were for exportation. The abattoir on West Thirty-Fourth Street was described, with its facilities for rendering the offal and refuse, and forcing the offensive gases through a sewer into the river. The advantages of this water-sewerage were especially emphasized, the board of health making daily inspections. The gases were conveyed eight feet below the surface of the river, when they became absorbed and deodorized. The nuisance of driving cattle through the streets had also been effectually abated by this system. Two other similar establishments on the east side of the river were briefly described, these having the same general excellences as the one previously mentioned. The fifty-two separate slaughter-houses on both the east and west sides were being gradually closed, and would eventually be abolished and the business concentrated in the abattoir on Fortieth Street, near the river. The paper closed with a consideration of the great benefits afforded to agriculture and the general business prosperity by converting the refuse matter into a fertilizer instead of allowing it to putrefy and breed disease. Dr. Janes then offered the following resolution: —

Resolved, That concentration of the slaughtering business in large abattoirs, located at the water-side, and remote from business centres and human dwellings, provided with facilities for utilizing all portions of the animal without de-

lay, is regarded as essential for the protection of public health, and as conducive to individual economy.

The exercises which it had been proposed to hold in the evening were omitted.

Second Day. Wednesday, October 4th. After the transaction of some business, the regular exercises were begun by the Hon. Emory Washburn, who read a paper on Expert Testimony and the Public Service of Experts in Matters affecting Life and Health. After a few preliminary remarks the speaker said he should confine himself to the general matter of the testimony of experts. The course pursued in courts where experts, in contradiction of other witnesses, are called to testify was reviewed, the latter being allowed only to testify to what they know personally, while the expert is permitted to give to the jury his theoretical deduction based upon argument and professional skill, with his argument in support thereof. A supposititious case was given in illustration, where in a murder by poisoning the weight of evidence rests entirely upon expert testimony based on the expert's knowledge and skill in science. But if in nine cases out of ten a certain result follows certain causes and fails in the tenth, then certainty is changed to probability; and herein consists the difficulty in expert testimony. The witness may believe his statement, but nevertheless his knowledge may be simply empirical, possibly false. He would not, however, be amenable to the laws to punish perjury.

Then, again, experts often differ in their conclusions derived from known circumstances, thereby bringing their evidence into disrepute. Mr. Washburn cited many cases where such differences have occurred. In cases where sanity or insanity is concerned, the inner workings of the mind were so complex and varied that it was difficult for experts to testify corroboratively. One who has known the subject for years might judge differently from an expert on the opposite side, whose theory might be logically correct as deduced from his knowledge of the person whose sanity is in question. Another case where experts differ is where the moral insanity of a prisoner is in question, extreme atrocity being looked upon by one witness as evidence of moral insanity, while an expert on the opposite reached a contrary conclusion. This matter of probability was further illustrated by cases where experts differ on the question of blood corpuscles. The importance and nature of this testimony is, however, becoming better understood each year. The speaker then alluded to certain witnesses who by omitting certain facts and hiding others prostitute science to personal pique or private gain. They are called upon usually to testify, not to facts, but to opinions. In Prussia they have a toxicologist, appointed by the government, and a board of medical experts; in Scotland experts have to first submit their evidence in writing, after which they are cross-examined orally, and their spoken testimony compared with the written; in France the government decides who shall be called as experts. The speaker also gave the different plans proposed in England and this country, including that which has been before the Massachusetts legislature, to have a regularly appointed board of experts, and thus expel from the practice those who testified simply for the pay they received. The paper concluded with a consideration of what men of science owe to themselves, to elevate the character of expert testimony, by discountenancing pretenders.

Prof. Wolcott Gibbs, who was to have followed in the discussion, was unable to attend on account of sickness, and his paper was read by Prof. H. P. Bowditch. The first proposition discussed was whether, under the present system as adopted in courts, the testimony of experts is brought out fully and fairly. The proper course suggested was that the expert should be called by neither side, but the appointment left with the judge, who should have no bias on either side. It was also thought that the testimony should be given in writing. When testimony is given orally, if a witness hesitates in his answer to the questions of a shrewd lawyer, his very hesitation, which should be considered an evidence of his desire to answer correctly, is represented to the jury to be proof of the worthlessness of his testimony. The paper concluded with a consideration of what plan could be devised by scientific men to correct the system of hired experts. The following resolve was presented: —

That a committee of five be appointed to inquire what methods of obtaining expert testimony prevail in Continental Europe, and to report at the next meeting of the association a plan of procedure based upon the information thus obtained.

Professor Horsford had hoped that ex-Governor Washburn would propose some specific scheme in this matter of experts. At present the great difficulty is that the experts are associated with the counsel and not with the court, where they belong. At present the lawyers who call them decide how much of the truth they shall testify to, and not until their appointment is taken from the hands of the counsel and put into those of the judge will there be any improvement.

Professor Ordronaux, commissioner of lunacy of New York and professor of jurisprudence in Columbia College, said that Governor Washburn had omitted the main point of the question. The great difficulty in expert testimony was that we treat all scientific conclusions as definite, but whereas in chemistry everything was certain, in that part of science relating to physiology, or life, there was always present an uncertainty. Skilled testimony was therefore a paradox from its very start. It was not testimony proper, but a judgment of the facts submitted to it for consideration. The speaker's illustration of the unreliability of the testimony under discussion was both elaborate and able, especially in the difficulty of correctly explaining data.

The professor then referred to the cross-examination of these witnesses, which he defined as a propounding of the most grotesque and absurd questions by the assistant counsel, who has been cramming for a week for the purpose. The cross-examination was therefore utter folly, and the effect was to arouse the indignation of first-class men, and make them determine never to testify again, which gradually lowered the class of experts until only the zeros remained as such. The proper position of experts was that of a body of independent referees.

The third paper was read by Dr. Steiner on Expert Supervision of the Construction and Internal Arrangement of Public Institutions in order to Prevent Injury to the Health of their Inmates. He showed the responsibility of the State for the supervision and protection of certain physical and mental wants of the people, to provide for which hospitals, schools, churches were indispen-

sable. Permanent buildings were required, for such institutions were needed, in which the greatest care should be taken lest they should be detrimental to health. The remedy for the injurious consequences of defective construction lay in the employment of proper sanitary supervision in their erection, which could be done only by competent experts, examination by whom should be made imperative by the state.

The evening was opened by the Rev. E. E. Hale, who made an excellent address. He was followed by Prof. Austin Flint, of whose address we give an abstract elsewhere.

Professor Runkle made some interesting remarks, showing how the health of the students at the Institute of Technology was improved since the introduction of an arrangement enabling them to obtain regular meals.

Third Day. Thursday, October 5th. The following gentlemen were elected officers for the coming year: President, Dr. John H. Rauch, Chicago; first vice-president, Dr. L. H. Steiner, Maryland; second vice-president, Dr. E. M. Hunt, New Jersey; treasurer, Dr. J. Foster Jenkins, New York; secretary, Dr. Elisha Harris, New York.

Prof. E. S. Wood, of the Harvard Medical School, read a valuable paper on the Relation of Illuminating Gas to Public Health, of which the following is an abstract: —

The processes resorted to in the manufacture of coal gas were first briefly described, and it was stated that the work in the retort houses had more influence upon the health of the employés in gas works than any of the other operations, for the reason that both the roof and the sides of the retort houses are always open, the former to permit the escape of the smoke and products of combustion from the fires, and the latter for wheeling in the coal to the retorts and taking away the coke. This condition of things necessarily subjects the men employed there to excessive changes of temperature and violent draughts of air, which results in a very large proportion of cases of phthisis and bronchitis. The coal and coke dust may also add to the irritation of the air-passages.

The purification of gas may be a nuisance to the whole neighborhood of the gas works unless properly performed. If the purifying material be lime, the foul and noxious gases should be removed by a ventilating apparatus and consumed before the purifying boxes are opened, or the principal portion should be first removed by wet lime, which should be so disposed of, as is done in this city, as not to prove a nuisance, or the iron mixtures should be used which combine chemically with the sulphur in the gas and fix it.

Petroleum or naphtha gas was mentioned as not being injurious. Considerable stress was laid upon the manufacture of water-gas, and health officers and the medical profession generally advised to be on their guard against the admission of pure water gas, which is a mixture of nearly equal parts of hydrogen and carbonic oxide, for heating purposes. This mixture is comparatively odorless, so that if a leak occurs and the gas escapes into an inhabited room fatal results are liable to follow, several cases having happened in Europe. If this gas, however, be enriched for illuminating purposes with petroleum, naphtha, or cannel-coal gas, which impart to it a powerful odor, it is but little, if any, more dangerous than common coal gas, which contains from five to eight per cent. of carbonic oxide.

The second paper was read by Dr. L. F. C. Garvin, of Lonsdale, R. I., on the Sanitary Requirements in Large Factories. After a brief description of Lonsdale and its factories, he gave a statement of the principal causes of the frequent accidents occurring in factories, with illustrative cases. From this he drew a list of proposed remedies, including the legal prohibition of the employment of children, the careful warning of all inexperienced persons concerning places of danger, the cleaning of machinery only when in rest, and the inclosure of all points of danger. Passing from the surgical to the medical branch of the subject, he spoke of the causes of high infant mortality in factory villages, the most important of which was no doubt the extent to which artificial food is resorted to. In reference to the chronic diseases, such as dyspepsia, anæmia, and phthisis, he suggested as remedies short hours for all, especially youth, improved dwellings, and better education. In conclusion, he offered the following resolution: —

Resolved, That the due protection and welfare of factory operatives require: (1) half-day schooling for children under sixteen years of age; (2) uniform hours of labor, not exceeding sixty per week; (3) frequent inspection of the mills and tenement-dwellings of factory villages, and of the milk sold to the inhabitants, by an authorized public health officer.

The resolution was adopted.

J. Herbert Shedd, civil engineer of Providence, read a paper on Water Supplies for Large Institutions and Small Communities.

Dr. A. L. Gihon read a paper on Safety in Traveling. He treated especially the question of traveling by sea, and advocated the inspection of every ship that entered or left port. There is apparently a great need of improvement in the sanitation of both government vessels and merchantmen.

Dr. Bowditch presided at the evening session.

Mr. Henley, of London, gave a remarkably concise description of the sanitary system recently established in England, and of the changes through which it was reached. He said that all sanitary matters are now under the charge of local boards, who are required to abate all nuisances, provide pure water and good drainage, and supervise the construction of all new buildings, to the end that proper regard be paid to ventilation, etc. In case of neglect of duty on the part of these local boards, an appeal lies to a central board, which forthwith sends an inspector and enforces such action as he may find necessary, through a mandamus from the Queen's Bench.

The first regular discourse of the evening was by Mr. Charlton T. Lewis, secretary of the New York Chamber of Life Insurance. The subject was Ancient and Modern Hygiene contrasted; Practical Results and Value of the Progress already Made, and Mr. Lewis's purpose was to show that the duration of human life has steadily increased with the progress of civilization. The causes of this increased average longevity he found in the improved care of infant life; the care of the sick, of the infirm, and of the aged; the avoidance of epidemics and of other calamities, such as famine; the comparative exemption from personal violence, and the fact that the preservation of health is beginning to be recognized as an end in the organization of society. He then criticised sharply the theory of improving the race by selection, or the survival

of the fittest, and declared that the best symbol of human progress is a venerable man decayed in body, but preserving the full energies of a wise, benevolent, and vigorous mind.

This was followed by a very suggestive paper on the Rights, Duties, and Privileges of the Community in Relation to those of the Individual in Regard to Public Health, by Dr. John S. Billings.

Fourth Day. Friday, October 6th. The secretary read a report on disinfection in yellow fever, as practiced in New Orleans, in the years 1870–76 inclusive, by C. B. White, M. D., of the State Board of Health for Louisiana; and a report upon scarlet fever, as it prevailed epidemically in Baltimore and Belair, Maryland, by John Morris, M. D., of Baltimore. These reports were referred to the publication committee to be printed. Mr. James T. Gardner, C. E., read a paper on The Relations of Topographical Surveys and Maps to Public Health Studies, which was discussed by Professor Pickering, Prof. T. Sterry Hunt, Dr. A. N. Bell of Brooklyn, Dr. John S. Billings, Prof. J. D. Runkle, and Professor Whitney. Prof. W. H. Brewer, of the Sheffield Scientific School, Yale College, read a paper on the Gases of Decay, and the harm they cause in dwellings. Col. George E. Waring's paper on the Sanitary Condition of Country Houses and Grounds was in the main a continuation of the previous topic. The report from the committee on the proposed sanitary survey of the United States was read, stating that it was intended to call a meeting of the committee in December, when they would seek the coöperation of those interested in topographical surveys, national and state censuses, and vital statistics. A resolution was then passed to the effect that the committee on a preliminary sanitary inquiry and survey be requested to confer with the superintendent of the national census, the commissioners and directors of the state topographical survey of New York, and the superintendents of the census in each State, with reference to the work which this committee is projecting. Resolutions were also passed indorsing the statement made in Mr. James T. Gardner's address, and in favor of a topograpical survey as the basis of sanitary surveys. Dr. Ezra M. Hunt, of New Jersey, read a paper on the Sanitary Appointments of Dwelling-Houses regarded as Essential and Obligatory. Mr. Frank D. Sanborn extended an invitation to the association to visit the Training School for Nurses, which was accepted. Papers on Florida as a Health Resort, by Dr. F. D. Lente, and on the Water Supply of Cities, by Dr. J. M. Toner, of Washington, and reports on the spring, well, and river water of the Department of the Platte and on a new method of observation in medical climatology, by Charles Smart, and on summer resorts for debilitated children, by Dr. Jerome Walker, were referred to the publication committee. Dr. Elisha Harris moved a resolution to the effect that the prevalence of yellow fever in the South indicated the necessity of better municipal measures for its prevention. Resolutions were adopted expressing the thanks of the association to the Institute of Technology and the press, and recommending the establishment of state boards of health. The association adjourned to meet at Chicago on the third Tuesday of September, 1877.

SANITARY SCIENCE.

The meeting of the Public Health Association has proved a success. The numbers were not large, but the members were in earnest and the work which they did was good. There was no loose talk, no hurried crudities; all was done deliberately. The suggestions offered on many points were very valuable, and in time may be carried out. We believe that public interest is aroused, and that the people are rapidly preparing to listen with respect and interest to views and proposals that a few years ago would have been scouted as visionary and absurd. The daily reports of the ravages of the yellow fever in the South are as many eloquent appeals for the study of sanitary science and the enforcement of its dictates. The fever was carried from the West Indies to Brunswick; thence it was allowed to work its way to Savannah. The cases were for a time looked upon as sporadic; the existence of sporadic yellow fever may be questioned, but those concerned are inclined to accept it rather than to believe that an epidemic is at the door. The inhabitants of Savannah "laid this flattering unction to their souls" till at last self-deception was no longer possible. Of thirty-two thousand inhabitants one half left the city, and of the remainder probably eleven hundred will have died by the time this appears. Sanitary science supported by the law might have confined the disease to Brunswick, or failing this it might have made Savannah far less liable to its ravages. We are informed that the sewers of that city were half full, and that there was no water to flush them. Much might be said in favor of some central power to direct in matters of quarantine, taking the authority away from small municipalities, but the question is surrounded by difficulties, political as well as scientific. We give in our report a pretty full account of the discussion on experts. All were agreed that the result of the system is very bad, though there was some difference of opinion as to whether the legal or the medical profession is most to blame.

MEDICAL NOTES.

— The following decision of the Supreme Judicial Court, rendered October 2d, is of interest to the profession. On November 4, 1871, the Mutual Life Insurance Company of New York issued a policy of insurance for $1000 on the life of Flora A. Hatch. The woman died by reason of a miscarriage produced by an illegal operation performed upon her. The company refused to pay the money, and the case was carried to the Superior Court, whence it went to the Supreme Court, which has just given the following decision: —

The voluntary act on the part of the assured, resulting in her death, was of such a character as to preclude the defendants from assuring against the consequences.

— According to the *Vienna Medical Press*, the homœopaths have discovered a new remedy for tape-worm. Taking the hint from the well-known popular belief that a snake is charmed by the sound of soft music, the homœ-

opathic doctor places the inferior orifice of the patient's intestinal canal in communication with a music-box, which is set a-playing. The tape-worm quickly makes his appearance head foremost, and winds himself along the connecting link toward the instrument; the latter is soon embraced in its turn, and the cure complete, for the parasite has, so to speak, abstracted himself.

— *The Medical and Surgical Reporter* of September 30, 1876, states that Dr. Gueneau de Mussy, in a communication to the *Gazette des Hôpitaux*, points out that one of the most frequent functional signs of cardiac affections is the difficulty that patients experience in preserving the horizontal position during sleep, generally requiring to have the head raised by several pillows. Nevertheless, it is not always the case, for there are some who can bear it, and some who even prefer it. These latter are generally affected with aortic insufficience, and he explains the peculiarity thus: when the aortic orifice, incompletely closed by its valves, permits a reflux of blood to the ventricle, the reflux is accomplished under the double influence of the weight of the blood column and the contraction of the aorta. The first of these influences acts to its full extent in the vertical position of the trunk, and is almost annihilated in the horizontal, so that, suppressing one of the co-efficients, the inconveniences of the lesion are lessened, and a relief produced which instinctively makes the patient seek the horizontal position. It is otherwise in lesions of the auriculo-ventricular orifices; the vertical position of the trunk renders the reflux of blood into the auricle less easy, and is instinctively chosen by the patient. In patients suffering from cardiac affections there is another circumstance which exercises a considerable and probably preponderating influence on the attitudes that they choose in decubitus. It is the state of the respiratory organs. Emphysema and pulmonary congestion demand the position that leaves the greatest freedom to the parts of the lung that can respire. The relative slowness of pulmonary complications in cases of aortic insufficience is one of the principal causes that permits patients to assume horizontal decubitus; whilst in mitral lesions these complications supervene much more rapidly.

— Dr. W. W. Vinnedge, in *The American Practitioner* for August, 1876, gives an account of an original method of suicide, practiced by James A. Moon, a farmer, thirty-seven years of age. Moon came to Lafayette, Indiana, and engaged a room in a hotel. He selected his room in the morning, left the hotel, and visited it again late in the afternoon, when he brought a heavy trunk, charging the porters to carry it with great care. After seeing his trunk placed to his liking in his room he went out again, and returned in the evening and was not afterwards seen alive. During the entire time of the preparations he was cheerful, talking familiarly with his acquaintances.

The instrument with which he accomplished his death has, on account of its construction and *modus operandi*, been called "the Moon guillotine."

The essential parts of the instrument were a broad-axe and lever screwed at one end to the floor. The axe was secured to this lever, seven feet in length, the lower two thirds of which consisted of wood, by upright pieces of bar-iron fastened with bolts and screws. The lever was composed of three separate parts, for convenience in transportation, firmly bolted together, the widened end being attached to the floor by means of hinges, to prevent any

possible lateral motion. At the other end of the lever, the iron bars to which the axe was attached were very heavy, in order to give the machine great effectiveness when put in motion. The axe, being elevated, was sustained at the proper angle for falling the greatest distance possible by means of a double cord attached to the free end of the lever and to a small hook in a bracket, which was securely fastened to the wood on the side of the window, about five feet from the floor. On this bracket was placed a lighted candle between the cords, which were consumed when the candle had burned sufficiently. The axe, being then unsupported, fell to do its fearful execution.

The suicide had placed an ordinary soap-box on its side with its open end just even with the line marked where the axe would fall. The box contained his head when he lay stretched out on the floor at right angles to the direction of the falling axe. Three pieces of pine board sustained his neck, and to keep his chin out of the sweep of the falling axe he had supported it by a little wooden rod, one fourth of an inch in diameter, placed across the box. This rod assisted in preventing the head and upper part of the trunk from being displaced.

Moon was not wholly indifferent to the fear of pain, and had obtained two ounces of chloroform, with which he saturated a quantity of cotton. The cotton was placed in the box so that the chloroform could be inhaled after he had adjusted himself by stretching out on the floor at right angles to the path of the guillotine, his head in the box and feet under the bed; his body was firmly fastened to the floor by straps and buckles. While the candle was burning he occupied this position, inhaling the anæsthetic. The flame reaching the cord it was burned through, and the axe fell with fearful force, severing the head completely from the body.

— Recent accounts from India state that the cholera has broken out in the mines at Garawara. There have been many deaths, and all the works have been stopped. We would call attention in this connection to the treatment of cholera by methods which have recently been alluded to in the JOURNAL. During the epidemic of 1866 at Vienna, Dr. Oser employed subcutaneous injections of camphor in sulphuric ether. From ten to twelve grains of camphor were dissolved in one drachm of ether. A subcutaneous syringeful of this was injected during the comatose stage, from which it always had the effect of reviving the patient, at least temporarily. Chloral has been administered subcutaneously, also. The solution should not be stronger than one part of chloral to seven of water. A writer in the *Practitioner* has employed this method in India with satisfactory results.

— The Paris correspondent of *The British Medical Journal* states that M. Panas, finding the customary methods of the treatment of ranulæ to be unsatisfactory, has lately resorted to the practice of injecting these tumors with a solution of the chloride of zinc (one part in ten), the results of which are most encouraging. M. Panas injects into the tumor from three to ten drops of this solution, which also varies in strength according to the age of the patient, and this he does with a Pravaz's syringe without previously emptying the tumor. M. Panas has also found this treatment to be successful in other tumors of the mouth besides ranulæ, and thinks it may be advantageously employed in all cases of mucous or serous cysts, in whatever part of the body they may occur.

CORONERS.

MESSRS. EDITORS. — It is not my purpose to rehearse the many errors and abuses arising from the present system of appointing coroners; they have been so many and great that the public has at last seen fit to inquire into them, and the daily press has reported adversely. The simple fact that in the Boston Directory for 1876 there are the names of thirty-six coroners, when one good coroner with three able assistants could do the whole of the work, is sufficient evidence that the law regarding the appointment of coroners is at fault. A careful study of the law will disclose no check upon the number that may be appointed, or penalty for malfeasance in office.

In the winter of 1871–72 I wrote several articles against the present system, advocating the repeal of all laws relating to coroners, and recommending as a substitute a court of inquest, presided over by a skillful lawyer. The medical officer will view all bodies suddenly deceased, or, where there are any suspicious circumstances connected with the death, make all necessary post mortems. He will then report in writing the probable time, cause, and method of death, leaving to the judge to perform the legal duties of his office. The intelligent (?) jury that is usually seen, hands in pocket, in the neighborhood of Court House Square can go West.

By this method, I am confident, the State will save in time (an inquest will not drag along for three or more weeks), in money, and in reputation; science will gain in valuable additions to our present store of medico-legal knowledge, and justice will more surely be meted to the guilty. The appointment of judge and medical officer should be made by the governor and council, and they should be removed only in consequence of incapacity, malfeasance, or by death.

ISAAC H. HAZELTON.

GRANTVILLE, MASS., *October* 6, 1876.

COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING SEPTEMBER 30, 1876.

	Estimated Population, July 1, 1876.	Total Mortality for the Week.	Annual Death-Rate per 1000 for the Week.	Death-Rate for the Year 1875.
New York	1,061,244	459	22.49	29.35
Philadelphia	825,594			22.24
Brooklyn .	506,233	168	17.24	24.92
Chicago . .	420,000	156	19.31	19.75
Boston . .	352,758	124	18.28	26 20
Providence	101,500			19.02
Worcester .	51,087	18	18.32	20.91
Lowell . .	51,639	24	24.17	20 55
Cambridge	49,670	22	23.03	23.31
Fall River	50,372	13	13.42	23.99
Lawrence .	36,240	11	15.78	25.96
Lynn . .	33,548	19	29.45	19.23
Springfield	32,000	16	26.00	20.93
Salem . .	26,344	9	17.76	22.92

Normal Death-Rate, 17 per 1000.

DR. H. R. STEDMAN and Dr. E. T. Williams have been appointed physicians to the Roxbury Dispensary connected with the Roxbury Charitable Society, in place of Dr. E. G. Morse and Dr. W. H. Emery.